UC Agriculture & Natural Resources
California Agriculture

Title
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Permalink
https://escholarship.org/uc/item/742300rz

Journal
California Agriculture, 72(2)

ISSN
0008-0845

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Publication Date
2018

DOI
10.3733/ca.2017a0050

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The race in the fields: Imports, machines and migrants

Four ways farmers are responding to the tightening labor market.

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The slowdown in unauthorized Mexico–U.S. migration has set off a race in U.S. agriculture between rising imports, more machines, and foreign guest workers. Trade policy, including North American Free Trade Agreement (NAFTA) re-negotiations, and immigration policy, including more enforcement and new or revised guest worker programs, will determine the winner.

Fewer and larger farms that depend on hired workers produce most U.S. fruits, vegetables, and horticultural crops such as nursery plants. The number of farms in the United States is stable at about 2 million, but the largest 10% of all farms account for three-fourths of U.S. farm sales. In fresh vegetables, the largest 10 producers account for more than half of the lettuce, broccoli and carrots produced.

Americans do not dream of growing up to be farmworkers. About 70% of the hired workers on U.S. crop farms were born in Mexico, and 70% of these Mexican-born workers are unauthorized, so half of crop workers are working illegally. California has a higher share of unauthorized workers because more of its workers were born in Mexico, 90% versus less than 70% in other states.

Crop workers are aging and settling. Most have families that include children born in the United States, and few are migrants who follow the crop harvests from south to north. Unauthorized newcomers, who are primarily Mexican-born workers in the United States less than a year, have been the flexible fresh blood of the farm workforce, willing to move to fill vacant jobs. Their share of crop workers peaked at a quarter in 2000, but today such newcomers represent just 1% of crop workers.

Farmers are responding to the end of large-scale Mexico–United States migration and California's rising minimum wage with four strategies: satisfy current workers to retain them, stretch them with mechanical aids that increase their productivity, substitute machines for workers, and supplement current workers with H-2A guest workers.

Seasonal farmwork is generally a decade-long job rather than a lifetime career. Training first-level supervisors to reduce favoritism and harassment, paying bonuses to workers who stay through the season, and offering other benefits helps to satisfy current workers and keep them in farmwork longer.

Stretching farmworkers involves management changes and mechanical aids that increase

Farmworkers harvest sweet corn in Santa Clara County. Due to a decrease in unauthorized immigration from Mexico, there has been a decline in the availability of farmworkers, in particular newcomers willing to move to follow short-term farm jobs. Farmers are stepping up their efforts to retain current workers and are turning to machines to help improve efficiency.

Bob Nichols, USDA

productivity. Most fresh fruits and vegetables are over 90% water, and workers spend much of their time carrying harvested produce down ladders to bins or to the end of rows to receive credit for their work. Dwarf trees mean fewer ladders and faster picking, reducing the need to fill 50- to 60-pound bags of apples and oranges from tall ladders. Slow-moving conveyor belts that travel ahead of workers in the fields reduce the need to carry harvested produce, increasing worker productivity and making jobs more attractive to older workers and women.

Substitution is replacing workers with machines. There are machines available to handle most tasks done by farmworkers, but human hands are gentler than mechanical fingers on fragile fresh fruits and vegetables, so that a higher share of hand-harvested produce can be sent to consumers. Machines have other disadvantages as well. They are fixed costs, meaning that farmers must pay for, say, a $200,000 harvesting machine whether there are apples to pick or not, while workers are variable costs who are not paid if storms or disease destroy the apple crop. Nonetheless, rising minimum wages, fewer flexible newcomers, and advances in mechanization have encouraged many farmers to experiment with machines, prompting manufacturers to develop and market labor-saving machines that are doing more planting and pruning and are improving rapidly to harvest blueberries, peaches and leaf lettuces.

The fourth option is to recruit guest workers under the federal H-2A program, which admits an unlimited number of foreign farmworkers to fill seasonal jobs. Receiving permission to hire H-2A guest workers requires farmers to try and fail to recruit U.S.-born workers, provide free housing, and pay an Adverse Effect Wage Rate (AEWR), which is $13.18 an hour in California in 2018.

The number of U.S. farm jobs certified to be filled by H-2A workers tripled over the past decade to 200,000 in fiscal year 2017 and may surpass the peak number of Braceros by 2025 (the Bracero guest worker program ran from 1942 to 1964; at its peak in the mid-1950s, more than 450,000 Mexican workers participated in it each year). The number of jobs certified to be filled by H-2A workers in California tripled in 5 years, from 3,000 in 2012 to 15,000 in 2017, and appears poised to continue increasing.

Half of the fresh fruit (including bananas, the most popular) and a quarter of the fresh vegetables available to Americans are imported, and imports of everything from avocados to raspberries are rising. Mexico is the major source of fresh fruit and vegetable imports, supplying half of the imported fresh fruit and three-fourths of the imported fresh vegetables. Many of the fruits and vegetables imported from Mexico are produced on farms that involve partnerships between U.S. and Mexican growers and shippers, with U.S. partners providing capital and technology and marketing Mexican-grown produce.

One legal option for farmers whose crops require manual labor is to hire guest workers under the federal H-2A program. To do this, farmers must first try and fail to recruit workers born in the United States and must provide free housing and a wage that averages $12 per hour.

Satisfying and stretching current workers are shorter term strategies to increase the productivity of an aging farm workforce. Substituting machines, hiring guest workers, and increasing imports are longer term strategies to supply fresh fruits and vegetables to Americans. Policy will help to determine the winner of the race in the fields between machines, migrants and imports. Technologies that could replace farmworkers are improving rapidly and decreasing in cost, potentially putting agriculture on the cusp of another wave of labor-saving mechanization. How fast machines are perfected and adopted depends on factors that range from labor costs to consumer acceptance.

Farmers have long sought new or revised guest worker programs that eliminate requirements to try to recruit U.S.-born workers, provide housing, and pay the super minimum AEWR wage. The House Judiciary Committee approved a bill in November 2017 that includes these farmer wishes, but it has drawn opposition from advocates for removing worker protections and from some farmers for capping the number of guest worker visas at 450,000 a year. If the new H-2C program included in the Agricultural Guestworker Act (HR 4092) is enacted, the influx of farm guest workers would likely accelerate, which may reduce support for the engineers and scientists developing machines to replace farmworkers.

The United States has an overall agricultural trade surplus, but a deficit in agricultural trade with Mexico reflecting ever-more Mexican avocado, tomato and berry imports. The Trump Administration aims to reduce the trade deficit with Mexico in NAFTA renegotiations, perhaps by imposing tariffs or other restrictions on Mexican imports. This could slow the integration of the North American produce industry, which has evolved to provide year-round supplies of fresh fruits and vegetables to Americans.

Agriculture has been at farm labor crossroads many times, asking who will pick the crops after the exclusion of the Chinese in the 1880s and the termination of the Bracero program in the 1960s. Today's race in the fields will determine whether Americans will consume more imported produce or whether fruits and vegetables will continue to be grown in the United States and picked by machines or guest workers. CA